

Claims

1. A gas spring suspension system comprising:

a frame;

a pressure chamber;

a compression piston assembly;

an adjustment assembly associated with the frame;

a piston tube operatively connected to the adjustment assembly and the

compression piston assembly,

the compression piston assembly slidably displaceable along the piston tube to

change the pressure in the pressure chamber,

the adjustment assembly operable to axially position the piston tube and the

compression piston assembly relative to the frame to adjust a travel of the

suspension system; and

a probe associated with the frame and configured to be variably positionable

within the pressure chamber in response to axial displacement of the piston tube

and the compression piston assembly by the adjustment assembly, the variable

positioning of the probe within the pressure chamber changing the pressure

therein.

2. The suspension system of claim 1, wherein the adjustment assembly further

comprises an actuator operable to position the adjustment assembly.

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3 3. The suspension system of claim 2, wherein the adjustment assembly further
4 comprises a driver element and a follower element; the driver element operably
5 connected to and displaceable with the actuator to displace the follower element;
6 the follower element operably connected to and displaceable with the piston
7 tube.

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10 4. The suspension system of claim 3, wherein the probe forms the driver
11 element.

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14 5. The suspension system of claim 3, wherein the actuator comprises a rotatable
15 knob and the driver element is threadably connected to the follower element, the
16 driver element being rotatable with the knob to axially displace the follower
17 element.

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20 6. The suspension system of claim 5, wherein the knob is formed integrally with
21 the driver element.

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1 7. The suspension system of claim 5, further comprising a reserve chamber
2 separated from the pressure chamber by a choke piston, the choke piston
3 permitting restricted gas flow from the pressure chamber to the reserve chamber
4 and less restricted gas flow from the reserve chamber to the pressure chamber.

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7 8. The suspension system of claim 7, wherein the choke piston is attached to the
8 probe and configured to be slidably displaceable along the piston tube, the choke
9 piston sealingly engaging the piston tube.

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12 9. The suspension system of claim 5, further comprising a valve associated with
13 the frame and the pressure chamber, the valve permitting external adjustment of
14 the pressure within the pressure chamber.

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17 10. The suspension system of claim 2, further comprising a reserve chamber
18 separated from the pressure chamber by a choke piston, the choke piston
19 permitting restricted gas flow from the pressure chamber to the reserve chamber
20 and less restricted gas flow from the reserve chamber to the pressure chamber.

1 11. The suspension system of claim 10, wherein the choke piston is attached to
2 the probe and configured to be slidably displaceable along the piston tube, the
3 choke piston sealingly engaging the piston tube.
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6 12. The suspension system of claim 2, further comprising a valve associated
7 with the frame and the pressure chamber, the valve permitting external
8 adjustment of the pressure within the pressure chamber.
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11 13. The suspension system of claim 1, further comprising a reserve chamber
12 separated from the pressure chamber by a choke piston, the choke piston
13 permitting restricted gas flow from the pressure chamber to the reserve chamber
14 and less restricted gas flow from the reserve chamber to the pressure chamber.
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17 14. The suspension system of claim 13, wherein the choke piston is attached to
18 the probe and configured to be slidably displaceable along the piston tube, the
19 choke piston sealingly engaging the piston tube.
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1 15. The suspension system of claim 1, further comprising a valve associated
2 with the frame and the pressure chamber, the valve permitting external
3 adjustment of the pressure within the pressure chamber.
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